Elia

Audit on the Transfer of Energy process and systems

Version : *Final*

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Auditrapport betreffende de implementatie en uitvoering van de regulering voor “transfer of energy” door Elia in het jaar 2019

Onderwerp van de audit

Deelname van het vraagbeheer aan elektriciteitsbalanceringsmarkten is per koninklijk besluit van 13 juli 2017 verbeterd. In het bijzonder is de regeling voor “Transfer of Energy (“ToE”) ingevoerd, waarbij een de aanbieder van flexibiliteitsdiensten (FSP) activiteiten binnen de evenwichtsperimeter van een derde evenwichtsverantwoordelijke (BRP) kan uitvoeren met bescherming van de commerciële belangen van de FSP en de betrokken BRP.

Elia heeft bij de invoering van de wet de volgende twee taken gekregen:

*Art. 19ter. § 1. De netbeheerder staat in voor **het beheer van de flexibiliteitsgegevens**, wat betreft de valorisatie van de flexibiliteit van de vraag die een energieoverdracht met zich meebrengt, zoals bedoeld in artikel 19bis.*

Hiertoe is hij in het bijzonder belast met de volgende taken, met inachtneming van de bepalingen van het technisch reglement:

*1° **de informatie nodig voor de berekening van het flexibiliteitsvolume van de vraag met een energieoverdracht, met inachtneming van de vertrouwelijkheid ervan, verzamelen, berekenen, verwerken en overmaken**;*

*2° de markt regelmatig opvolgen en **monitoren** en **de Commissie op de hoogte brengen** van **elke eventuele aanwijzing van manipulatie die een invloed heeft op de bepaling van de geactiveerde vraagflexibiliteitsvolumes** met een energieoverdracht.*

Opinie van de auditor

IBM heeft als onafhankelijke partij de opdracht uitgevoerd om de implementatie van de regulering bij Elia te toetsen tegen de wettelijke vereisten. Daarbij is in het bijzonder gekeken naar de belangen van betrokken derden (leveranciers, FSPs en evenwichtsverantwoordelijken) die op de correcte uitvoering van het proces moeten kunnen vertrouwen. Tenslotte is in het belang van Elia gekeken of de uitvoering doelmatig gebeurt. IBM heeft de uitvoering in de periode 2019 geëvalueerd.

IBM heeft op geen enkele wijze zelf een belang in Elia en is niet direct of indirect betrokken in de

Rapport d'audit sur l’implémentation et l’exécution par Elia de la réglementation du « transfert d'énergie » pour l’année 2019

Object du rapport d’audit

La participation des gestionnaires de la gestion de la demande dans les marchés d'équilibrage de l'électricité a été améliorée par l'arrêté royal du 13 juillet 2017. En particulier, le régime "Transfert d'énergie" ("ToE") a été introduit, selon lequel l’opérateur de services de flexibilité (FSP) peut exercer des activités dans le périmètre d’équilibrage d'un tiers responsable de l’équilibre (BRP), tout en protégeant les intérêts commerciaux du FSP et du BRP concerné.

Elia s'est vu confier les deux tâches suivantes lors de l’entrée en vigueur de la loi :

*Art. 19ter. § 1er. Le gestionnaire du réseau est chargé de la **gestion des données de flexibilité** pour ce qui concerne la valorisation de la flexibilité de la demande entraînant un transfert d'énergie visé à l'article 19bis.*

A cet effet, il est notamment chargé des tâches suivantes, dans le respect des dispositions du règlement technique :

*1° **collecter**, **vérifier**, **traiter** et **transmettre les informations** nécessaires au **calcul du volume de flexibilité de la demande impliquant un transfert d'énergie**, tout en **assurant leur confidentialité**;*

*2° assurer un suivi et un **monitoring régulier** du marché, et **informer la Commission** de tout **indice éventuel de manipulation influençant la détermination des volumes activés de flexibilité** de la demande impliquant un transfert d'énergie.*

Avis de l’auditeur

IBM, en tant que partie indépendante, a effectué l'évaluation de la mise en œuvre du règlement par Elia vis-à-vis des exigences légales. Une attention particulière a été accordée aux intérêts des tiers concernés (fournisseurs, FSP et responsables d’équilibre), qui doivent pouvoir compter sur la bonne exécution du processus. Enfin, dans l'intérêt d'Elia, l’efficacité du déroulement des procédures a été vérifié. IBM a évalué l'exécution pour la période 2019.

IBM n'a pas de participation propre dans Elia et n'est pas directement ou indirectement impliquée dans les transactions financières sous-

financiële transacties waaraan de processen van transfer of energy ten grondslag liggen en heeft ook anderszins geen belang bij de uitkomst van deze audit.	jacentes au régime « Transfert d'énergie » et n'a aucun autre intérêt dans le résultat de cet audit.
IBM heeft vastgesteld dat Elia haar systemen en processen heeft ingericht in overeenstemming met de functionele en technische vereisten van de regelgeving, te weten:	IBM a déterminé qu'Elia a mis en place ses systèmes et processus conformément aux exigences fonctionnelles et techniques de la réglementation, à savoir :
- Beslissing (B)1677 15 maart 2018, uitgevaardigd door CREG	- Décision (B)1677 du 15 mars 2018, rendue par la CREG
- Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 01/12/2018, Opgesteld door en goedgekeurd door CREG	- Règles pour l'organisation du transfert d'énergie. Entrée en vigueur le 01/12/2018, établi par et approuvé par la CREG.
Onze evaluatie heeft betrekking op de naleving van de voorgeschreven procesvereisten en de mate waarin Elia als organisatie controle heeft over de correcte en doelmatige uitvoering van de processen. Onze evaluatie vormde geen analyse van de opvolging van de wet in juridische zin.	Notre évaluation porte sur le respect des exigences de processus prescrites et cherche à savoir si Elia, en tant qu'organisation, a le contrôle sur l'exécution correcte et sur l'efficacité des processus. Notre évaluation n'est pas une analyse juridique du respect de la loi.
Het voorliggende rapport is een volledig verslag van de audit, de bevindingen en aanbevelingen.	Le présent document est un rapport complet reprenant l'audit, les constatations et les recommandations.

Sander van Dam

Associate Partner IBM

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1. Management Summary

Belgium has formalized rules for distributed demand response to participate in the wholesale market. The need for distributed flexibility to become an integral part of dispatch optimization is felt throughout Europe and Belgium is among the first countries to formalize rules, after Elia had been running pilots with aggregators for procuring aggregated flex as reserve market products.

Belgian market rules are innovative, since they allow for aggregators as independent balance responsible parties to aggregate flexibility from within the balance perimeter of suppliers. This prompts for the need to transfer volumes between the energy balances of balance responsible parties (BRPs), which is now regulated in the electricity law and codes. Elia plays a key role in the organization, calculation and settlement of flexibility as the 'Flexibility Data Manager' and is entrusted with the role to settle the energy balances with aggregators and suppliers, whilst protecting the confidentiality of the aggregator's portfolio.

The confidentiality requirement means that Elia must calculate volumes to be transferred between balances while suppliers cannot see the underlying data. It is therefore essential that supplier can trust the implementation at Elia of these processes.

IBM has, on the request of Elia and CREG, for the second year, conducted an independent assessment of Elia's implementation of the process of Transfer of Energy, with the objective to establish:

- *whether Elia has faithfully implemented the requirements that the new regulation poses on Elia;*
- *whether the implementation is such that Elia is on control of the quality of the execution of these processes;*
- *whether the implementation of the processes is effective;*
- *whether key risks have been mitigated where appropriate.*

Our conclusion is that Elia has implemented the regulation in an appropriate fashion. Elia have faithfully implemented every requirement according the rules. We have found that in some instances additional controls are needed for Elia to detect and manage exceptions, but also noted that Elia has taken actions to address recommendations from the previous audit. With regards to the use of information technology, we think that a more efficient design is possible in which the administration of Transfer of Energy is kept separate from the existing backend systems for Elia's system operations.

The current document provides an account of the audit, lists the major findings and recommendations. The standard used in support of the audit is the standard developed in the previous audit, updated for changes in the regulation and rules during 2019.

The standard is fully documented in this report and can be used as the basis for future audits of Elia's implementation of Transfer of Energy.

2. Audit objective

2.1 Background

The Transfer of Energy was introduced by the Law of 13 July 2017, amending the federal Electricity Law of 29 April 1999, in order to improve the participation of the demand side flexibility.

Transfer of Energy (ToE) implies the activation of demand side flexibility involving a Supplier and Flexibility Service Provider (FSP) having a distinct BRP and/or an FSP distinct of Supplier.

In this system, the System Operator is entrusted the mission of the flexibility data management with a series of tasks to be fulfilled and that are specified in Art.19ter of the Electricity Law. The CREG has been entrusted the role of controlling the exercise of this mission as specified in Art.23 § 1er. 13° of the Electricity Law.

Belgian market rules are innovative, since they allow for aggregators as independent Balance Responsible Parties to aggregate flexibility from within the perimeter of Suppliers. This prompts for the need to transfer volumes between the energy balances of balance responsible parties (BRPs), which is now regulated in the electricity law and codes. Elia plays a key role in the organization, calculation and settlement of flexibility as the 'Flexibility Data Manager' and is entrusted with the role to settle the energy balances with aggregators and suppliers, whilst protecting the confidentiality of the aggregator's portfolio.

Elia's role is delicate, because:

- Elia determines the impact of aggregators on the balance of the balance responsible party (BRP) but cannot provide the underlying details for reasons of confidentiality. This means that trust rather than verification is the basis for acceptance of these numbers by BRPs;
- Elia itself is acting as single buyer of the same volumes of flexibility that it determines. Transparency is needed to demonstrate the impartiality of the calculations and their settlement;
- markets for aggregated flexibility are recent developments and they are evolving. There is no standard set of rules nor are there long-standing practices that can be applied. This means rules and practices as foreseen need to be evaluated thoroughly to ensure the market works efficiently and properly.

2.2 Objective of the mission

A specific condition for the task of Flexibility Data Management is that the client portfolio of the FSP, who has invested in acquiring clients and setting up the conditions for demand response activations, remains confidential, i.e. is not shared with Suppliers. Parties will have to rely on volumes provided by the Flexibility Data Danager to execute financial settlement on their transfer of energy without further detailed information regarding volumes per delivery point and without the possibility to validate those data.

The control of the mission of the flexibility data management activity is **to independently verify that Transfer of Energy volumes can be trusted,** since mostly[1] aggregated volumes are to be transmitted by the flexibility data manager to different parties (BSPs, BRPs and Suppliers) due to confidentiality reasons.

The tasks for the fulfilment of flexibility data management activities related to Transfer of Energy are described in the art. 19ter of the Electricity Law and the external audit mission should control that these tasks are fulfilled:

- Assessment of the fulfillment of the Flexibility Data Manager role, described in the Law of 13 July 2017 as : «*collecter, vérifier, traiter et transmettre les informations nécessaires au calcul du volume de flexibilité de la demande impliquant un transfert d'énergie, tout en assurant leur confidentialité ».*

[1] Suppliers receive non-aggregated volumes for delivery points with a « Contrat à valorisation d'écart »

- Assessment of the fulfillment of the Market Supervision Task described in the Law of 13 July 2017 as : «*assurer un suivi et un **monitoring régulier** du marché, ainsi qu'**informer la Commission** de tout **indice éventuel de manipulation influençant la détermination des volumes activés de flexibilité** de la demande impliquant un transfert d'énergie. »*

The scope of the audit for the execution of transfer of energy in 2019 comprises all markets to which the Transfer of Energy is of application on 31 December 2019, which are:

- Tertiary Control Non-Reserved by Non-CIPU Technical Units (as of June 1, 2018);
- Tertiary Control Reserved by Non-CIPU Technical Units (as of December 1, 2018);
- Strategic Demand Reserve (SDR) (as of November 1, 2019).

Note that as the regulations and procedures covered by this audit have been completely re-done in the beginning of 2020, we have agreed with Elia to extend the period covered by this audit to 03/02/2020.

1) Assessment of the fulfillment of the Flexibility Data Manager role

In order to guarantee the trust of parties in the Transfer of Energy volumes, the external audit's objective is to provide reasonable assurance of good design of the process and assessment of effective application in practice of the task of validation of ToE Volumes, as well as the compliance with applicable law and regulations. In particular, the assessment by the audit consisted of the following tasks:

1. Evaluate existence of procedures and their concordance with the legal and regulated framework;
2. Evaluate the good execution and effectiveness of these procedures;
3. Check the existence of adequate internal controls in the process to mitigate the settlement operational risks;
4. Check existence of corrective measures to assure the effectiveness of the settlement operations;
5. Check the existence of data validation procedures of input data;
6. Evaluate the reliability of reporting (internal, towards parties, towards CREG), and confidentiality of the TDSO Datahub tool;
7. In order to guarantee that ToE Volumes are well calculated, we also expect from the participant to execute calculations of ToE Volumes per delivery point in order to verify that aggregated ToE Volumes transmitted to parties (FSPs, BRPs and Suppliers) are correct.

2) Assessment of the fulfillment of the Market Supervision Task

In order to ensure the fulfillment of the task of gaming monitoring of flexibility activated volumes, Elia executes the following controls:

- Baseline methodology check: for some of the products on which ToE is applicable, FSP has the possibility to choose between several baseline methodologies (currently for R3 FSP can choose between "last quarter-hour" or "high X of Y"). When there is a choice among several Baseline methodologies; Elia has the right in a motivated way to refuse the methodology of the Baseline chosen by the FSP. It shall notify in this case its decision to the CREG.
- High prices vs offered volume check: In periods of high prices, there is likelihood that grid users' offtake is artificially increased during the hours/days of a potential activation in order to artificially increase his baseline and therefore the calculated delivered volume in case he is activated. The baseline design aims at mitigating that risk, but Elia will still verify in case of activation if there is an abnormal increase of the offered volume and/or the baseline.

In order to guarantee the trust of parties in the Transfer of Energy volumes, the external audit's objective was to provide reasonable assurance of good design of the process and assessment of effective application in practice of the task of gaming monitoring of flexibility activated volumes. In particular, the assessment by the audit consisted of the following tasks:

- Evaluate existence of procedures and their concordance with the legal and regulated framework;
- Evaluate the good execution and effectiveness of these procedures;
- Evaluate the reliability of reporting towards CREG;
- Report Findings, Suggestions and Recommendations for potential improvements.

Whereas the audit's objective was to check the completeness and correctness of procedures in concordance with the prescriptions in law and regulation, the assessment cannot be viewed as a legal opinion regarding compliance with applicable law. The assessment applied interpretations of the governing law and regulations texts based on knowledge of the business processes rather than evaluating their precise meaning in the Belgian legal framework. The latter would be the competence of lawyers.

2.3 Referenced documentation

Ref	Name	Issued by	Version
B1677	Beslissing (B)1677 15 maart 2018, published by CREG	CREG	15-03-2018
R-ToE	Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 01/12/2018, Published by Elia and approved by CREG	Elia	01-12-2018
GFA-TC	General Framework for the Tertiary Control Non-Reserved Service by Non-CIPU Technical Units 2019-2021	Elia	Version of January 2019
GFA-NC	General Framework for Tertiary Control by Non-CIPU Technical Units 2019 – 2021	Elia	Version of January 2019
ARP-C	Contract van Toegangsverantwoordelijke ARP-contract	Elia	April 20,2018
RCD	Regles de fonctionnement du marche relatif a la compensation des desequilibres quart- horaires	Elia	01/12/2018
FSD	T-DSO Datahub Formula specification Document	Synergrid	V2.0
ED-GRD	C8/05 - Échanges de données entre Gestionnaires de réseau et Parties de marché dans le cadre du transfert d'énergie	Synergrid	1 juin 2018
NdC	mFRR & SDR by Non-CIPU Technical Units Note de collaboration Elia-GRD	Synergrid	25-10-2018
S-ToE	Contract ELIA-Supplier for the Exchange of Data Related to the Transfer of Energy	Elia	Final
FD-DH	TSO-DSO Flex Data Hub Functional Documentation	Synergrid	V2.0
PD-DH	Process documentation: mFRR - ToE – Datahub - Operational documentation	Elia	V1.0 d.d. 31/01/2019
PD-BW	R3 ToE – Bank Guarantee checks Process Documentation	Elia	29/01/2019

PD-PC	R3 ToE – Pass Through check Process Documentation	Elia	30/01/2019
FD- CC-ToE	CC - Tranfert of Energy Functional Design	Elia	2/10/2018
IC_DH	Confirmation of the implementation of the new features on the Datahub	Synergrid	23/04/2019
FL_DH	Presentation on the new features of the Datahub for Q1 2019	Synergrid	Q4 2018
AS_SDR	The need for a Strategic Reserve for winter 2019-20 and winter outlook for 2020-21 and 2021-22	Elia	November 2019
MB	15 JANUARI 2019. - Ministerieel besluit houdende instructie aan de netbeheerder om een strategische reserve aan te leggen vanaf 1 november 2019	Belgian Governement	21/01/2019
OC_DH	Datahub Operationeel Contract	Elia and DGO's	02/02/2018

3. Methodology

3.1 Audit process overview

There is no industry standard checklist available to verify if Elia has implemented the Transfer of Energy in concordance with the requirements set out in law and regulation. However, during the 2018 audit a standard checklist has been defined based on the regulation in effect at that time.

The 2019 audit uses this standard amended for the changes in regulation which came in force in 2019.

In this audit we have checked compliance against that amended standard. This audit report documents the standard as well as the results of our assessment of the extent to which Elia complies with it.

The methodology used in the audit is illustrated in the diagram below:

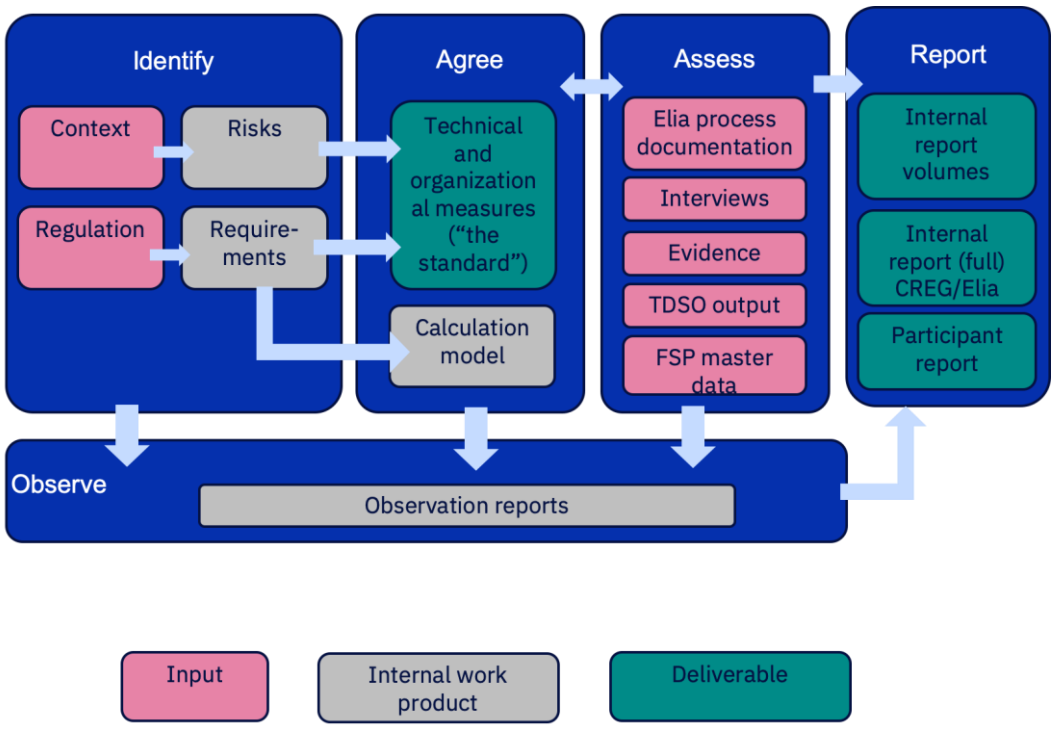

Figure 1: Audit process overview

For sake of clarity and completeness we describe below the details of the methodology whereby we highlight the amendments of the baseline standard (2018) brought about by the changes in the contextual and regulatory framework, as well as some amendments that result of the outcome of the audit 2018.

3.2 Identify

In this activity, the team has identified the regulatory requirements for Elia's implementation of the Transfer of Energy. The sources to derive these requirements are:

- [B1677], Beslissing (B)1677 15 maart 2018, published by CREG

- [R-TOE], Regels voor de organisatie van de Energieoverdracht. Inwerkingtreding op 01/12/2018, Published by Elia and approved by CREG

From these documents, we have extracted 37 requirements on the implementation of Transfer of Energy by Elia, requirements that have a direct source in the text of the regulation.

Furthermore, the team identified risks that follow from the general context of the process. These risks can be reasoned to exist but were not explicitly listed in the regulation. The purpose of this exercise was to see if such risks were effectively mitigated by Elia.

In 2019 Elia had the obligation to allow FSP's to select the baseline method by delivery point for the reserved tertiary non-CIPU Units as well as the use of the High X or Y baseline method. (01/04/2019).

Furthermore, Elia had to open the market for SDR Units as of 01/11/2019.

However, an adequacy study for the winter 2019-2020 has resulted in the ordering of 0 MW strategic capacity by the federal government. Hence, the market was not activated, and the auditors have decided to not investigate the implementation of the rules linked to this market.

Supporting documents:

- [AS_SDR], the need for a Strategic Reserve for winter 2019-20 and winter outlook for 2020-21 and 2021-22
- [MB], 15 JANUARI 2019. - Ministerieel besluit houdende instructie aan de netbeheerder om een strategische reserve aan te leggen vanaf 1 november 2019

3.3 Agree

The next step was to identify for each requirement which controls would be needed for Elia make sure the requirements was implemented effectively. The team considered five types of potential controls:

1. **Identify**: Elia has defined a procedure that implements the regulatory requirement
2. **Mitigate**: Elia has taken measures to prevent that the procedure fails to be executed or is executed Improperly
3. **Detect**: Elia has taken measures to detect that a procedure fails to execute, is executed improperly or has an unexpected outcome
4. **Respond**: Elia has defined who is to respond and how this is done
5. **Recover**: Elia has identified how to recover if a procedure was not executed correctly

Depending on the requirement, three to five of the above types of controls could be expected. The audit has limited the analysis to controls that are specific for the transfer of energy process, the so called 'business process controls' as shown in the diagram below:

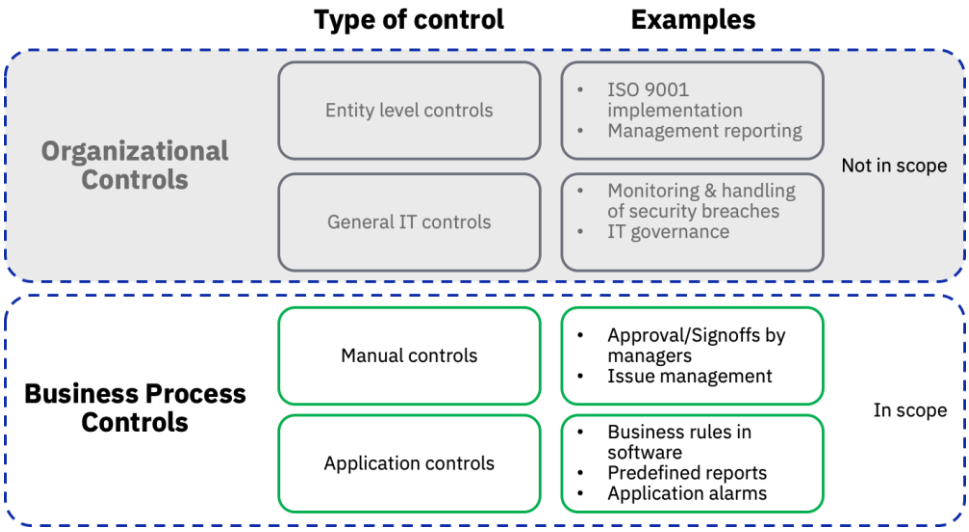

Figure 2: Control types

Any relevant control that Elia needs for the management of its IT and business processes was assumed to be covered by internal quality management and assessed in more generic audits. The controls that audit team considered in scope were business process control. We have not taken a position whether such a control should be a technical measure, an automated application control, or an organizational control which is manual by nature, i.e. executed by an employee.

Any control we defined in the standard is there a technical and/or organizational measure (TOM).

The audit team has identified the standard as the set of requirements and their associated expected technical and/or organizational measures (TOMs). In total we have identified 158 TOMs in the standard, 18 more than in the previous audit.

The standard has been reviewed by Elia's Operations and Data department, the department that is responsible for the proper execution of Transfer of Energy. In this review, it remained the purview of the auditors to establish whether a control should be in place for a certain requirement, but it was Elia's competence to check that the interpretation of the regulation and the used terminology was correct.

In 2019 some 18 additional TOM's have been defined, which are mostly related to the introduction of the High X or Y baseline method and the possibility to select a baseline by delivery point for the reserved tertiary non-CIPU Units. Hence the changes are in the area of the delivery point qualification and ToE calculation.

3.4 Assess

The audit team has assessed compliance with the standard in the following manner:

a. For every technical and/or organizational measure, we checked the existence of by checking Elia's documentation;

   - We assessed whether the measure was technical by nature (an application control) or organizational (a manual control);
   - Any TOM we could positively identify was recorded with a reference to the source;

b. We send out one questionnaire and conducted one interview with the person in Elia responsible for the execution of the ToE process ('implementation manager') Christopher Seghers to discuss TOMs that are organizational by nature to assess

- Whether a real implementation of expected organizational measures existed;
- How the process is governed;
- Whether there is proof of the actual execution of manual controls.

c. For any control that was not identified in either documentation under a) and in the interviews under b) we issued requests for information. After issuing 60 RFI, the assessment was complete in the sense that we had a positive or a negative confirmation for the TOM. The documentation consulted is listed in paragraph 2.3;

d. For the purpose of verifying the validity of the ToE calculations, the audit team set up and independent calculation model. Using the data of an actual activation, we ran our model to compare the output.

3.5 Observe

During any of the above steps, the audit team logged any observation concerning unclarity in the requirements, lack of compliance with the standard or perceived inefficiency of the implementation of the process. In short, any observation that was deemed relevant in the light of the objectives set out in paragraph 2.2.

Also, the actions that were given on the recommendations stemming from the audit 2018 were reviewed and included in the observations noted for 2019.

These observations were validated during a progress meeting between the IBM audit team and the Elia team that is responsible for Transfer of Energy (Manual Aparicio and Christopher Seghers). The observations from the 2018 audit and the observations that were recorded in the audit team's observation log and that have not been clarified as irrelevant during the audit are included in this audit report.

3.6 Report

The audit team presents its findings in this Audit report which is intended as an internal report for Elia and that can be shared with the CREG in its role of supervisor of the Flexibility Data Manager (pursuant to art.23 § 1er. 13° of the Electricity Law). The report documents the updated standard for the Transfer of Energy audit, so that it can be reused for future audits. This is done in chapter 4,

4. The ToE Standard

4.1 ToE Standard structure and Process Areas

Based on the standard developed during the 2018 audit, we have reviewed and extended the standard based on the regulations mentioned in paragraph 2.3, i.e. valid for the period under audit for the 2019 Audit. We have extracted new requirements from the baseline in 8 process areas:

A. **FSP Qualification**: the area related to all steps involved in the contracting process for FSPs that want to participate in Transfer of Energy;
B. **Delivery Point Qualification**: the area related to the validation of the FSP portfolio used for providing non-CIPU tertiary reserve;
C. Data Management: the area related to all process steps involved in the administration of the FSP portfolio and the meter data related to activations that involve Transfer of Energy;
D. Activation Handling: the area that relates to all process involved in bids that lead to an actual activation that involve Transfer of Energy;
E. ToE Calculation: the process area that relates to the calculation of volumes that will be settled between FSPs and Suppliers;
F. Information exchange: the area that covers all activities related to the exchange of information between DSOs, Elia, FSPs and Suppliers;
G. Volume Allocation: the process area that covers the calculations of impact on the balance of Balance Responsible Parties of FSPs as well as Suppliers involved in Transfer of Energy. This concerns both the correction of balances as well las the allocation of imbalance caused by an activation;
H. Market Supervision: the area that covers any activity by Elia to monitor the market with regards to market manipulation.

It follows from the nature of Transfer of Energy and Elia's role in it, that these process areas will remain the key process areas implied in future versions of the regulation concerning Transfer of Energy.

Within each area, we have documented the key requirements relevant for the audit and give the short identifier indicating the process area as well. So, the first requirement in process area A has shorthand A-1, etc. We provide a summary of the requirement in English with a precise reference to the source text in the regulation baseline of 2019.

For each requirement, we have identified technical and/or organizational measures that we expect as a control on the process prescribed in the requirement. The audit consists of the checking the existence of the TOM, the execution of it in practice and an evaluation of its effectiveness. This can be repeated in future audits using the standard below. Through the references per requirement, the standard can easily be updated to reflect any changes in the regulation baseline.

4.2 ToE Requirements and TOMs

The ToE requirements and TOMs for audit 2019 have been amended to cater for the changes in the regulation and procedures implemented during 2019. As a result, and due to the nature of these changes, the changes can be found back in process area B, qualifications and process, and area E, ToE calculations.

We have chosen to not alter the sequence of the original requirements but rather add to the list of requirements. For the requirements which where unvalidated during 2019, an end date was added.

In the list below, the new or amended TOM's have a blue colored font.

4.2.1 Process Area A: FSP Qualification

The following requirements apply to this process area:

Req #	Requirement	Source document	Reference
A-1	Valid bank warranty is condition for ToE participation	[B1677]	Page 17, Point 42
A-2	Elia keeps track of the FSP's total amount for periodical reevaluation of the minimum required bank warranty	[B1677]	Page 18/19, point 45&46, page 20 point 51

For these requirements, the following technical and/or organizational requirements are expected:

Req #	Requirement	TOM	Technical/Organizational Measure
A-1	Valid bank warranty is condition for ToE participation	A-1.1	Elia sets precondition of a bank warranty for ToE participation by FSP
		A-1.2	FSP is blocked from bidding and ToE participation unless bank warranty has been approved
		A-1.3	Elia checks validity of bank warranty periodically
		A-1.4	Elia has a process to block access to the market where ToE applies if bank warranty is no longer valid
		A-1.5	Elia can open up access to market where ToE applies after new bank warranty was provided and approved
A-2	Elia keeps track of the FSP's total amount for periodical reevaluation of the minimum required bank warranty	A-2.1	Elia has allocated the responsibility to calculate total FSP total amount over a period of 4 months
		A-2.2	Elia executes processes timely to avoid buildup of the FSP's total amount
		A-2.3	Elia checks that the calculated 4 months total amount is realistic and checks the amount against the existing bank warranty
		A-2.4	Access to auctions for future tertiary reserve power are blocked if the total amounts at risk surpass the bank warranty.
		A-2.5	Elia demands a new bank warranty if the previous is no longer valid, because its validity period has expired, and or the total amount is no longer in line with the warranty amount.

4.2.2 Process Area B: Delivery Point Qualification

The following requirements apply to this process area:

B-1	Mutual agreement between FSP and Supplier is precondition for participation of delivery point in flex market	[B1677]	Page 7, point 11
B-2	Elia determines annually in February whether there is a positive nett offtake for all delivery points where ToE applies"	[R-ToE]	point 7.3
B-3	The period in which a delivery point may be eligible for ToE runs from April 1 of a given year to March 31 of the following year.	[R-ToE]	point 7.3
B-4	Elia may exclude a delivery point from the FSP portfolio if there is an uncertainty on the existence of a passthrough contract	[R-ToE]	point 14.4
B-5	Transfer of Energy is always executed if the flexibility is activated in the relevant markets under the responsibility of an BRP that is different from the Supplier's BRP and/or FSP and supplier are not the same party, unless these parties have explicitly opted out of the ToE process	[R-ToE]	point 8.1 & 8.2
B-6	Elia has the possibility to refuse the Baseline methodology chosen by the FSP for the "Tertiary Control Reserved by Non-CIPU Technical Units" market. This refusal needs to be motivated. Elia will inform the commission.	[R-ToE]	point 9.2.2

For these requirements, the following technical and/or organizational requirements are expected:

Req	Requirement	TOM	Technical/Organizational Measure
B-1	Mutual agreement between FSP and Supplier is precondition for participation of delivery point in flex market	B-1.1	Elia can detect whether valid agreement between Supplier and FSP on the transfer price is in place.
		B-1.2	Elia can prevent an activation from occurring if it is known that there is no valid agreement between Supplier and FSP on the transfer price.
		B-1.3	Elia checks periodically the validity of the agreement between Supplier and FSP on the transfer price for activations of flex at delivery points
		B-1.4	Elia blocks activations if there is no valid agreement between Supplier and FSP on the transfer price and handles the activation as an incident to prevent future occurrence
		B-1.5	Elia can correct activations that occurred while no valid agreement between Supplier and FSP on the transfer price was in place
B-2	Elia determines annually in February whether there is a positive nett offtake for all delivery points where ToE applies"	B-2.1	Elia can identify for all delivery points whether there was a positive annual net off-take in the previous calendar year
		B-2.2	Elia can block activations for delivery points in the FSPs portfolio that do not comply with the condition of positive annual nett offtake.
		B-2.3	Elia can detect if activations have taken place for delivery points that do not comply with the condition of positive annual nett offtake

		B-2.4	Elia has a defined process to deal with delivery points in the FSP portfolio that do not comply with the condition of positive annual nett offtake
		B-2.5	Elia can correct activations that occurred while the condition of annual positive nett offtake was not met.
B-3	The period in which a delivery point may be eligible for ToE runs from April 1 of a given year to March 31 of the following year.	B-3.1	FSP may not activate a delivery point in its portfolio that do not comply anymore with the condition of positive annual nett offtake
		B-3.2	Activations for delivery points that do not comply with the condition of positive annual nett offtake within the FSP portfolio are blocked
		B-3.3	Elia can identify cases where activations were executed on delivery points that do not comply with the condition of positive annual nett offtake
		B-3.4	Elia notifies FSP about the invalid activation due to the non-compliance with the condition of positive annual nett offtake
		B-3.5	Invalid activation due to the non-compliance with the condition of positive annual nett offtake is corrected in the ToE calculation
B-4	Elia may exclude a delivery point from the FSP portfolio if there is an uncertainty on the existence of a passthrough contract	B-4.1	Elia has specified a process to exclude delivery points from ToE participation in the case of uncertainty about the existence of a passthrough contract and has allocated the responsibility for this process within the organisation
		B-4.2	Elia checks against known passthrough contracts provided by Suppliers prior to setting the FSP portfolio up for markets where ToE applies
		B-4.3	Elia is kept up to date by Suppliers regarding passthrough agreements and checks against the FSP portfolios
		B-4.4	FSP is notified if a delivery with an uncertain passthrough contract is detected
		B-4.5	Delivery point is blocked from ToE participation
B-5	Transfer of Energy is always executed if the flexibility is activated in the relevant markets under the responsibility of an BRP that is different from the Supplier's BRP and/or FSP and supplier are not the same party, unless these parties have explicitly opted out of the ToE process	B-5.1	Elia can detect whether a valid opt-out arrangement between FSP, Supplier, BRPfsp and BRPsource is in place.
		B-5.2	Elia can prevent an activation from occurring if it is known that there is no valid opt-out arrangement.
		B-5.3	Elia checks periodically validity of opt-out arrangement for delivery points in flex markets where ToE applies
		B-5.4	Elia blocks activations if there is no valid opt-out arrangement and handles the activation as an incident to prevent future occurrence.
		B-5.5	Elia can correct activations that occurred while no valid opt-out arrangement was in place.
B-6	Elia has the possibility to refuse	B-6.1	Elia has defined criteria that can be used to verify the fairness of the baseline choice selected for a delivery point.

	the Baseline methodology chosen by the FSP for the "Tertiary Control Reserved by Non-CIPU Technical Units" market. This refusal needs to be motivated. Elia will inform the commission.	B-6.2	Elia has communicated the criteria used to verify the fairness of a baseline methodology selection for a delivery point.
		B-6.3	Elia verifies the selected baseline method at every change of the master data for a delivery point. When the entered baseline method cannot be accepted, the relevant responsible is warned, and the delivery point is excluded from ToE
		B-6.4	When the baseline method selected for a delivery point is not fair and is refused, Elia will contact the FSP to inform him/her of this refusal and ultimately inform the CREG.
		B-6.5	Elia can correct activations that occurred while the delivery point used a not agreed upon baseline

4.2.3 Process Area C: Data Management

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
C-1	Elia treats FSP and Supplier portfolios as confidential information	[B1677]	Page 24 point 66
C-2	Elia maintains a concordance list of all delivery points with BRPsource, Supplier, FSP, BRPfsp and end consumer including master data, based on the access contract of the delivery point.	[R-ToE]	point 7.3
C-3	Operators of closed distribution systems provide Elia with information about contracts relevant for the transfer of energy process	[R-ToE]	point 7.3
C-4	Data from submeters can be used in the ToE calculation. (the regulations stipulate no requirements with regard to completeness and correctness of the meter data, and hence this needs to be guaranteed by the ToE calculation)	[R-ToE]	point 14.4
C-5	Elia keeps the FSP portfolio and activation data confidential by communicating only on aggregated level	[R-ToE]	point 15.1

For these requirements, the following technical and/or organizational requirements are expected:

Req	Requirement	TOM	Technical/Organizational Measure
C-1	Elia treats FSP and Supplier portfolios as confidential information	C-1.1	Elia does not allow unauthorized access to master and meter data
		C-1.2	Elia implements strict access control in the ToE application and logs all access. Elia only communicates aggregated volumes to Suppliers.
		C-1.3	Elia monitors all data access to ToE systems
		C-1.4	Elia notifies implicated parties in case of breach
C-2	Elia maintains a concordance list of all delivery points with BRPsource, Supplier, FSP, BRPfsp and end consumer including master data, based on the access contract of the delivery point.	C-2.1	Elia has access to the appropriate sources for delivery points and is kept informed about changes to them
		C-2.2	Elia has taken measures to keep its flex registry up to date
		C-2.3	Elia has taken measures to detect synchronization errors and data pollution in its registry
		C-2.4	Elia treats detected data errors as incidents
		C-2.5	Elia can correct the data in its registry in a controlled, transparent and consistent manner
C-3	Operators of closed distribution systems provide Elia with information about contracts relevant for the transfer of energy process	C-3.1	Elia has identified the trusted sources of the connection data and what change requests can be expected on this data for CDSs
		C-3.2	Elia has taken appropriate measures to prevent data pollution in CDS related data
		C-3.3	Elia has appropriate measures to detect data pollution in CDS data
		C-3.4	Elia treats detected data errors in CDS data as incidents

		C-3.5	Elia is able to correct CDS related data pollution in a controlled transparent and consistent manner
C-4	Data from submeters can be used in the ToE calculation. (the regulations stipulate no requirements with regard to completeness and correctness of the meter data, and hence this needs to be guaranteed by the ToE calculation)	C-4.1	Elia has assessed the validity of using submeter data for ToE
		C-4.2	Elia has formulated requirements for submeter data collection and validation
		C-4.3	Elia can detect whether submeter data is credible
		C-4.4	Elia has a process to inform the parties involved that volumes are not derived from correct meter register data
		C-4.5	Elia has a process to meter register data corrections. Or recovery mechanism to resolve disputes
C-5	Elia keeps the FSP portfolio and activation data confidential by communicating only on aggregated level	C-5.1	Elia has defined a policy to keep the FSP data confidential
		C-5.2	Elia has implemented application rules to prevent FSP from being shared with suppliers
		C-5.3	Elia keeps a trail of data access, so that unauthorized data access can be detected
		C-5.4	Elia has defined a process to deal with data breaches

4.2.4 Process Area D: Activation Handling

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
D-1	Elia may penalize the FSP if within 30 days the FSP is 3 times late in sending notifications about activations for reserved power.	[R-ToE]	point 14.2
D-2	Elia will penalize activations according to the product-specific penalties	[R-ToE]	point 14.1, 14.2 & 14.3
D-3	Elia may exclude an FSP from the next auction for reserved tertiary power and SDR if he fails to provide activation notifications 1 or 2 within the time limit of 3 minutes, if this happens 3 times within 30 days	[R-ToE]	point 14.2 & 14.3

For these requirements, the following technical and/or organizational requirements are expected:

Req	Requirement	TOM	Technical/Organizational Measure
D-1	Elia may penalize the FSP if within 30 days the FSP is 3 times late in sending notifications about activations for reserved power.	D-1.1	Elia can test the receipt capability of FSP notifications
		D-1.2	Elia can receive FSP notifications via backup facility
		D-1.3	Elia can detect if an FSP missed 3 times in 30 days the 3-minute notification. The FSP can autonomously detect if it missed the 3-minute notification.
		D-1.4	Elia informs FSP of exclusion of upcoming auction, when it detects that in a period of 30 days the 3-minute notification has been missed 3 times
D-2	Elia will penalize activations according to the product-specific penalties	D-2.1	Elia has determined how to apply activation penalties according to product specific rules where ToE applies.
		D-2.2	Deviations during an activation that are subject to specific penalties are detected
		D-2.3	Penalties are applied to all products where ToE applies according to product specific rules
D-3	Elia may exclude an FSP from the next auction for reserved tertiary power and SDR if he fails to provide activation notifications 1 or 2 within the time limit of 3 minutes, if this happens 3 times within 30 days	D-3.1	Elia has allocated the responsibility of monitoring of the compliance and follow-up in case of non-compliance with notification timelines of the FSP's participating in the auction of tertiary power and SDR.
		D-3.2	Elia logs communication times. Elia has implemented an alarm in case of delayed or missing messages exchanged with the FSP's participating in the auction of tertiary power and SDR.
		D-3.3	A measurement period is started for 30-day period in case of missing of delayed notification. In case of 3 breached pithing 30 days, the FSP is notified of penalty and access to the next auction for reserved tertiary power and SDR is blocked.

4.2.5 Process Area E: ToE Calculation

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
E-1	The baseline selected by the FSP for the market where ToE applies is applied to the portfolio as a whole (Valid until March 2019)	[R-ToE]	point 9.2
E-2	The baseline for the market of Tertiary Control Non-Reserved by Non-CIPU Technical Units must always be based on the last quarter hour prior to activation.	[R-ToE]	point 9.2
E-3	Activated power is limited to the reference power contracted between FSP and Grid user	[R-ToE]	point 11.2
E-4	Elia calculates the Activation Volume for ToE as the difference between validated quarterly meter readings and the baseline	[R-ToE]	point 11.2
E-5	Elia calculates ToE for the delivery points in the second notification message	[R-ToE]	point 11.2
E-6	Calculated activation volumes of delivered power are corrected pro rata so that the total equals requested volume in case the calculated total volume surpasses request volume	[R-ToE]	point 11.2
E-7	In case activations of multiple products, allocation is done according to following order: 1. Non-Reserved Tertiary Control, 2. Tertiary Control - Standard Reserve, 3. Tertiary Control - Flex Reserve	[R-ToE]	point 11.3
E-8	The calculated baseline profile is adjusted by the consumption or infeed on the connection during the 3 hours before activation signal.	[R-ToE]	point 9.3.2
E-9	The baseline selected by the FSP for the market where ToE applies is applied at the delivery point level for Tertiary Control Reserved by Non-CIPU Technical Units (as of April 2019)	[R-ToE]	point 9.2
E-10	The baseline selected by the FSP for the market where ToE applies is applied to the portfolio as a whole for Tertiary Control Non-Reserved by Non-CIPU Technical Units (as of April 2019)	[R-ToE]	point 9.2
E-11	The baseline for the market of Tertiary Control Reserved by Non-CIPU Technical Units is either based on the last quarter hour prior to activation baseline method or the High X of Y' baseline	[R-ToE]	point 9.2
E-12	If a delivery point is participating to the "Tertiary Control Reserved by Non-CIPU Technical Units" market and the "Tertiary Control Non-Reserved by Non-CIPU Technical Units" market at the same time, the baseline shall be based on the last quarter hour prior to activation baseline method.	[R-ToE]	point 9.2

For these requirements, the following technical and/or organizational requirements are expected:

Req	Requirement	TOM	Technical/Organizational Measure
E-1	The baseline selected by the FSP for the market	E-1.1	Elia ensures that each FSP contract specifies the baseline-method used for all delivery points in the FSP portfolio

	where ToE applies is applied to the portfolio as a whole. (Valid until March 2019)	E-1.2	Elia has appropriate measures to detect the baseline method in the FSP contract for the purpose of calculating ToE Volumes
E-2	The baseline for the market of Tertiary Control Non-Reserved by Non-CIPU Technical Units must always be based on the last quarter hour prior to activation.	E-2.1	Elia has implemented a policy to always apply the last QH baseline for Tertiary Control Non-Reserved by Non-CIPU Technical Units
		E-2.2	Per ToE agreements, Elia enforces the rule that the last QH baseline is applied for Tertiary Control Non-Reserved by Non-CIPU Technical Units
		E-2.3	Elia tests its system for compliance with the rule that the last QH baseline is applied for Tertiary Control Non-Reserved by Non-CIPU Technical Units
E-3	Activated power is limited to the reference power contracted between FSP and Grid user	E-3.1	Elia has taken measures to be aware of the reference power that can be applied in the volume calculation
		E-3.2	Elia has implemented a procedure to cap the delivered volume to the applicable reference power. Elia has checks to see that this procedure is enforced
		E-3.3	Elia can detect if activations are systematically surpassing reference power, indicating a data problem
		E-3.4	Elia has a defined process to handle incidents where apparently reference power was applied incorrectly as a limit
E-4	Elia calculates the Activation Volume for ToE as the difference between validated quarterly meter readings and the baseline	E-4.1	Elia has designed detail application rules for calculating ToE volumes
		E-4.2	Elia monitors the execution of the ToE calculations for timeliness, correctness and completeness
		E-4.3	Elia detect errors and irregularities and reports these to the appropriate responsible person for follow up
		E-4.4	Elia have defined procedures and allocated responsibility for following up on calculation problems
		E-4.5	Elia can restart the process to recover from missing or disputable volumes
E-5	Elia calculates ToE for the delivery points in the second notification message	E-5.1	Elia can proof that the correct basis for the calculation was used. Elia ensures it has the input available for all activations
		E-5.2	Information exchange provides for non-repudiation.
		E-5.3	Elia is aware if notifications are missing or disputed
		E-5.4	Elia notifies an FSP in case there is a problem with the notification and handles the incident
		E-5.5	Elia can retroactively apply the correct notification with delivery points for the correct calculation of ToE
E-6	Calculated activation volumes of delivered power are corrected pro rata so that the total	E-6.1	Elia is able to determine that the aggregated delivered volume was above the requested volume
		E-6.2	Elia only activates flex up to the requested volume.

	equals requested volume in case the calculated total volume surpasses request volume	E-6.3	Elia can detect that the aggregated volume exceeds the requested volume
		E-6.4	Elia will reduce the aggregated volume down to the requested volume pro-rata for each delivery point in the portfolio
		E-6.5	Elia will correct the balance of the FSP and BRP for the reduction imposed
E-7	In case activations of multiple products, allocation is done according to following order: 1. Non-Reserved Tertiary Control, 2. Tertiary Control - Standard Reserve, 3. Tertiary Control - Flex Reserve	E-7.1	Elia has a clear record of the delivery point sequence for allocation of volume
		E-7.2	There is a clear classification of delivery points regarding the allocation of volumes
		E-7.5	Elia can retroactively apply the correct allocation of energy to the delivery points and update the involved parties
E-8	The calculated baseline profile is adjusted by the consumption or infeed on the connection during the 3 hours before activation signal.	E-8.1	Elia ensures that each FSP contract specifies the baseline-method used for all delivery points in the FSP portfolio
		E-8.2	There is a clear classification of delivery points regarding the allocation of volumes
		E-8.3	Elia has appropriate measures to detect the baseline method in the FSP contract for the purpose of calculating ToE Volumes
E-9	The baseline selected by the FSP for the market where ToE applies is applied at the delivery point level for Tertiary Control Reserved by Non-CIPU Technical Units (as of April 2019)	E-9.1	Elia ensures that each FSP contract specifies the baseline-method used for each of the delivery points part of Tertiary Control Reserved by Non-CIPU Technical Units in the FSP portfolio
		E-9.2	Elia has appropriate measures to detect the baseline method in the FSP contract of Tertiary Control Reserved by Non-CIPU Technical Units for the purpose of calculating ToE Volumes
E-10	The baseline selected by the FSP for the market where ToE applies is applied to the portfolio as a whole for Tertiary Control Non-Reserved by Non-CIPU Technical Units (as of April 2019)	E-10.1	Elia ensures that each FSP contract specifies the baseline-method used for each of the delivery points part of Tertiary Control Non-Reserved by Non-CIPU Technical Units in the FSP portfolio
		E-10.2	Elia has appropriate measures to detect the baseline method in the FSP contract of Tertiary Control Non-Reserved by Non-CIPU Technical Units for the purpose of calculating ToE Volumes
E-11	The baseline for the market of Tertiary Control Reserved by Non-CIPU Technical Units is either based on the last quarter hour prior to activation baseline method or the High X of Y' baseline	E-11.1	Elia has implemented a policy to limit the choice by unit to either the High X of Y' baseline or the last quarter hour baseline for Tertiary Control Reserved by Non-CIPU Technical Units
		E-11.2	Per ToE agreements, Elia enforces the rule that either the High X of Y' baseline or the last quarter hour baseline is applied for Tertiary Control Reserved by Non-CIPU Technical Units
		E-11.3	Elia tests its system for compliance with the rule that either the High X of Y' baseline or the last quarter hour baseline is used for Tertiary Control Reserved by Non-CIPU Technical Units

E-12	If a delivery point is participating to the "Tertiary Control Reserved by Non-CIPU Technical Units" market and the "Tertiary Control Non-Reserved by Non-CIPU Technical Units" market at the same time, the baseline shall be based on the last quarter hour prior to activation baseline method.	E-12.1	Elia has implemented a policy to limit the choice to the last quarter hour baseline method for delivery points which are participating to the “Tertiary Control Non-Reserved by Non-CIPU Technical Units” market and the “Tertiary Control Reserved by Non-CIPU Technical Units” market at the same time.
		E-12.2	Elia enforces the rule that the last quarter hour baseline method is applied to delivery point which are participating to the “Tertiary Control Non-Reserved by Non-CIPU Technical Units” market and the “Tertiary Control Reserved by Non-CIPU Technical Units” market at the same time.
		E-12.3	Elia tests its system for compliance with the rule that the last quarter hour baseline method is used for delivery points which are participating to the “Tertiary Control Non-Reserved by Non-CIPU Technical Units” market and the “Tertiary Control Reserved by Non-CIPU Technical Units” market at the same time.

4.2.6 Process Area F: Information exchange

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
F-1	Elia notifies FSP about requested flex volume prior to activation period	[R-ToE]	point 13.1.1 & 13.1.2
F-2	Elia notifies to BRPsource the maximum amount of flex that could be activated given the requested volume sent to the FSP.	[R-ToE]	point 13.2
F-3	Elia notifies to BRPsource the amount of flex that will be activated given the FSP's first notification, no later than 3 minutes after the activation started	[R-ToE]	point 13.2
F-4	Elia notifies to BRPsource the amount of flex that has been activated given the FSP's second notification, no later than 3 minutes after the activation has ended	[R-ToE]	point 13.2
F-5	FSP notifies Elia about the set of delivery points and their respective activation volume not later than 3 minutes after the start of the activation period	[R-ToE]	point 13.3
F-6	FSP notifies Elia about the set of delivery points and their respective activation volume not later than 3 minutes after the end of the activation period	[R-ToE]	point 13.3
F-7	Elia provides ToE volumes for settlement to the Supplier and FSP	[R-ToE]	point 15.3 & 15.4
F-8	Elia notifies to BRPsource the maximum amount of flex that could be activated given the requested volume sent to the FSP, no later than 3 minutes prior to activation.	[R-ToE]	point 13.2

For these requirements, the following technical and/or organizational requirements are expected:

Req	Requirement	TOM	Technical/Organizational Measure
F-1	Elia notifies FSP about requested flex volume prior to activation period	F-1.1	Elia ensures completeness of messaging
		F-1.2	Elia has created a feedback loop to ensure activation and messaging are coupled
		F-1.3	Elia can detect whether for every activation a notification was sent
		F-1.4	Missing message is treated as an incident
		F-1.5	Elia cancels the activation
F-2	Elia notifies to BRPsource the maximum amount of flex that could be activated given the requested volume sent to the FSP.	F-2.1	Elia can route messages according to FSP BRP relationships
		F-2.2	Elia can detect the correct message routing based on FSP BRP relationships
		F-2.3	Elia handles the errors in message routing as an incident
		F-2.4	Elia can correct the message routing

F-3	Elia notifies to BRPsource the amount of flex that will be activated given the FSP's first notification, no later than 3 minutes after the activation started	F-3.1	Elia has formulated a rule that whenever an FSP activates energy, Elia immediately calculates impact per affected BRP and communicates this to the BRPs
		F-3.2	Elia has firm SLAs with FSP to deliver the info within the timeframe
		F-3.3	Elia can detect whether all required messages have been sent and whether the messages are sent within the specified time frames
		F-3.4	Elia handles the missed deadlines as an incident
F-4	Elia notifies to BRPsource the amount of flex that has been activated given the FSP's second notification, no later than 3 minutes after the activation has ended	F-4.1	Elia has formulated a rule that whenever an FSP activates energy, Elia immediately calculates impact per affected BRP and communicates this to the BRPs
		F-4.2	Elia has firm SLAs with FSP to deliver the info within the timeframe. Elia has built a system that can execute this function within a second.
		F-4.3	Elia can detect whether all required messages have been sent and whether the messages are sent within the specified time frames
		F-4.4	Elia handles the missed deadlines as an incident
		F-4.5	Elia can report the amount of flex afterwards if the automated notification was missing
F-5	FSP notifies Elia about the set of delivery points and their respective activation volume not later than 3 minutes after the start of the activation period	F-5.1	Elia is able to identify if an FSP message is received within the time frame
		F-5.2	Elia can detect that the receipt of the FSP activation message is within 3 minutes after the start of the activation
F-6	FSP notifies Elia about the set of delivery points and their respective activation volume not later than 3 minutes after the end of the activation period	F-6.1	Elia is able to identify if an FSP message is received within the time frame
		F-6.2	Elia can detect that the receipt of the FSP activation message is within 3 minutes after the end of the activation
		F-6.3	Elia handles the late receipt of FSP messages as an incident
F-7	Elia provides ToE volumes for settlement to the Supplier and FSP	F-7.1	Elia has a procedure for calculating and distributing settlement volumes
		F-7.2	Elia can detect if it failed to deliver settlement volumes in time
		F-7.3	Elia handles missing settlement reports as incidents
		F-7.4	Elia can produce settlement volumes ad hoc
F-8	Elia notifies to BRPsource the maximum amount of flex that could be activated given the requested volume sent to the FSP, no later than 3 minutes prior to activation.	F-8.1	Elia can route messages on time according to FSP BRP relationships
		F-8.2	Elia can detect if the messages are sent within the specified time frame
		F-8.3	Elia handles the missed deadlines as an incident
		F-8.4	Elia can produce the message ad hoc if the message was not sent for some reason.

4.2.7 Process Area G: Volume Allocation

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
G-1	Elia corrects the balance of the BRPsource with the activated volume	[R-ToE]	point 12.1
G-2	Elia allocates the difference between requested and delivered volume to the balance of the BRPfsp	[R-ToE]	point 12.1
G-3	In case of separate BRP-sources for injection and offtake, the BRPsource for offtake is corrected	[R-ToE]	point 12.2
G-4	Elia allocates imbalance to the BRPfsp	[R-ToE]	point 15.2

For these requirements, the following technical and/or organizational requirements are expected:

Req	Requirement	TOM	Technical/Organizational Measure
G-1	Elia corrects the balance of the BRPsource with the activated volume	G-1.1	Elia has record of BRPs that might be impacted by FSP activations
		G-1.2	Elia can detect that the correction of the balance position of the BRPsource equals the volume of the FSP activation
		G-1.3	Elia corrects the balance position of the affected BRPsource
G-2	Elia allocates the difference between requested and delivered volume to the balance of the BRPfsp	G-2.1	Elia keeps track of imbalance caused by FSP
		G-2.2	The volume of imbalance is allocated to the FSP
		G-2.3	Elia can cross-check the detected imbalances in ToE with the actual imbalance volumes allocated as a result
		G-2.4	Elia handles deviations between ToE volumes and imbalance settlement volumes as an incident
		G-2.5	Elia can correct the volumes in ToE and/or imbalance allocation to restore consistency
G-3	In case of separate BRP-sources for injection and offtake, the BRPsource for offtake is corrected	G-3.1	Elia can detect cases in which there are separate BRPs for injection and offtake.
		G-3.4	Elia applies the correct allocation of ToE volumes in case of two BRPs on a single delivery point
G-4	Elia allocates imbalance to the BRPfsp	G-4.1	Elia has defined a process to calculate imbalance caused by the FSP
		G-4.2	Elia will detect imbalance caused by activation and records the volume
		G-4.3	Elia allocates imbalance to the BRPfsp balance

4.2.8 Process Area H: Market Supervision

The following requirements were applied to this process area:

Req #	Requirement	Source document	Reference
H-1	Elia provides ToE data to CREG for monitoring purposes and comments on suspected manipulation	[R-ToE]	point 15.5

The source documentation mentions two specific controls. One to see whether the requested baseline method is fair and a second to see whether high imbalance prices have led to undesired manipulations. However, since there was free choice of baseline method per delivery point in the reviewed period, only the latter is taken into account for the standard:

H-1	Elia provides ToE data to CREG for monitoring purposes and comments on suspected manipulation	H-1.1	Elia analyses activation to detect whether there were high reserve power prices that attracted a load increase prior to a demand response activation
		H-1.2	Elia reports irregularities in load profiles if it suspects that load was manipulated in anticipation of high prices for reserve power

5. Audit results

5.1 Compliance assessment

Following the assessment process as laid out in paragraph we have assessed compliance with the standard. In summary, for the complete set of requirements, compliance as is shown in the diagram below:

		# of TOMs					Audit Score												CONTROLS			
							Identify			Mitigate			Detect			Respond			Recover						
	Process Area's	Identify	Mitigate	Detect	Respond	Recover	Org	Tech	Miss.	Org	Tech	Miss	Org	Tech	Miss.	Org	Tech	Miss.	Org	Tech	Miss.	Target	Present	Gap	%
A	FSP qualification & contracting	2	2	2	2	2	2	0	0	2	0	0	2	0	0	2	0	0	2	0	0	10	10	0	100%
B	Delivery Point Qualification	6	5	6	6	6	6	2	0	4	1	1	4	3	1	5	4	0	5	2	1	29	26	3	90%
C	Data management	5	5	5	5	3	2	4	0	3	4	0	2	3	1	3	2	0	3	1	0	23	22	1	96%
D	Activation handling	3	1	3	3	0	2	2	0	1	0	0	1	2	0	2	1	0	0	0	0	10	10	0	100%
E	ToE Calculation	12	9	11	4	4	3	8	1	1	8	0	1	9	1	1	2	1	1	3	0	40	37	3	93%
F	Information Exchange	8	3	8	7	5	0	8	0	0	2	1	3	6	0	5	2	1	5	0	0	31	29	2	94%
G	Volume Allocation	4	1	3	4	1	1	3	0	0	1	0	1	2	0	0	4	0	0	1	0	13	13	0	100%
H	Market supervision	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	2	0	100%
							16	27	1	11	16	2	15	25	3	19	15	2	16	7	1	158	149	9	
	Totals	40	26	39	32	21	43			27			40			34			23						

The left hand side of the table shows the number of technical and/or organizational measures we expected to be implemented by Elia, categorized as explained in paragraph 3.3 in 5 control types (Identification, Mitigation, Detection, Response and Recovery). As explained above, the audit team is neutral as to whether a control should be an application control (a technical measure) or a manual control (an organizational measure). Elia can choose either as a valid implementation of the control as well as a combination of the two.

The table in the middle of the diagram shows what the audit team established during the assessment to be the case at the moment. It lists how many appropriate technical and how many organizational measures were validated as controls, as well if any controls were missing.

On the right-hand side of the table, we show on how many TOMs we have validated as ‘compliant’ (in the column ‘present’) and how many we consider as implied by the standard but missing implementation (in. the column ‘Gap’). Overall score per process area is in the outmost right column.

As we will explain below, we qualify the incompliances as low risk under the current circumstances. The reality is that there are few activations for which Transfer of Energy applies. Therefore, the lack of a formal control is mitigated by the fact that few instances get so much direct attention from the people involved at Elia (and presumably at aggregators and distribution grid companies, that there is sufficient assurance that the processes are executed properly. However, under the assumption that the transfer of Energy should be valid in the case of a large number of activations for many participants, the gaps can be considered significant.

The same is true for the general observations about the effectiveness of the implementation of Transfer of Energy processes at Elia (cf. paragraph 5.3).

5.1.1 FSP Qualification

For the process area of FSP qualification we found all expected TOMs to be in place. FSP Qualification is a fully manual procedure by nature. The procedure is well documented. Roles in Elia are clearly defined and allocated to the employees. The audit team did not have a single reservation during the assessment regarding the implementation.

5.1.2 Delivery Point Qualification

For the process area of Delivery qualification, we found all expected TOMs to be in place within Elia. We have found an appropriate combination of application and manual controls. However, this is a process area that Elia has decided to delegate to distribution grid companies for those delivery points that reside on medium voltage grids. Even though it may be assumed that distribution grid companies have defined internal controls on the activities they execute in this process area, we do not consider that Elia is sufficiently in control, leading to **observation 1** documented in paragraph 6.1. This reservation relates specifically to the following controls:

B-1.1	Elia can detect whether valid agreement between Supplier and FSP on the transfer price is in place.	Elia do not detect whether e.g. supplier switches have been processed correctly by DGOs. No change to the data at the beginning of the month may mean there was nothing to be changed or a change has not been processed. There is no periodical control flow to determine what is the case.
B-2.1	Elia can identify for all delivery points whether there was a positive annual net off-take in the previous calendar year	Elia do not detect whether DGOs have assessed the nett off-take condition. No change to the data may mean there was nothing to be changed or a change has not been processed. There is no control flow to determine what is the case.
B-5.1	Elia can detect whether a valid opt-out arrangement between FSP, Supplier, BRPfsp and BRPsource is in place.	Elia do not detect whether supplier switches have been processed correctly by DGOs. No change to the data at the beginning of the month may mean there was nothing to be changed or a change has not been processed. There is no periodical control flow to determine what is the case.

In the area of the selection of the baseline method and the checking of the legitimacy of that choice, Elia has developed tooling with which they can classify delivery points. For each class the most appropriate baseline method is defined. However, Elia has not formalized this method. This leads to **observation 10** documented in paragraph 6.1, even though no party has requested the use of the X/Y baseline method during the audit period.

The reservation relates specifically to following controls:

B-6.2	Elia has communicated the criteria used to verify the fairness of a baseline methodology selection for a delivery point.	This lacking communication of the criteria and or methodology, will make it difficult to defend against criticism that an ad-hoc rule has been "invented" to support Elia refusal of a baseline selection made by an FSP. Also, in the case that selections made by different FSP's needs to be refused, it might be difficult for Elia to proof that the rules underpinning a refusal are always the same.

5.1.3 Data Management

For the process area of Data Management, the audit team found that all but one expected control was present in some form. The gap is:

C-4.3	Elia can detect whether submeter data is credible	In 2019, no corresponding control was identified. However, the auditors were informed that a control has been put in place in 2020. See **observation 2** in paragraph 6.2

We did find that in 2019 the controls for keeping the FSP Portfolio data up to date was not satisfactory. Data about the FSP Portfolio is basically entered manually into the systems at the start of a contract for Transfer of Energy, either in screens or through uploading a file that is assembled based on contractual data. There is no direct link with the data that the FSP maintains himself. Any changes to this data on the side of the grid operators or the side of the FSP is communicated between persons and processed manually. There is no opportunity to check the data by comparing the FSP source data with the source data used on the Transfer of Energy process. This is **observation 5** (cf. paragraph 6.5) and relates to the controls below.

C-2.2	Elia has taken measures to keep its flex registry up to date	There is no control to verify that the data, that FSP on the one side and the system operator on the other side consider valid, is in fact the same data. There is a risk of data pollution.
C-2.3	Elia has taken measures to detect synchronization errors and data pollution in its registry	There are several controls on steps in the data processing, but Elia has not taken the ultimate measures of checking data against the FSP's version of it. The link between the FSP data and the TDSO datahub is indirect and inconsistency is not detected though data comparison.
C-3.2	Elia has taken appropriate measures to prevent data pollution in CDS related data	There are several controls on steps in the data processing, but Elia has not taken the ultimate measures of checking data against the FSP's version of it. The link between the FSP data and the TDSO datahub is indirect and inconsistency is not detected though data comparison.

Elia did explain that there is an indirect control, because for activations Elia will send a report to the FSP detailing activated volume per delivery point. If there is any data inconsistency that leads to incorrectly calculated volumes, this could be detected by the FSP if he makes a counter calculation.

Also, Elia explained that they have taken measures to allow FSP's to verify the data stored in Elia's systems on his portfolio. To that effect Elia has implemented a platform with which an FSP will be able have an overview of their pool and the attributes of each delivery point in real time. This system has been implemented in 2020 but falls outside the period audited.

Finally, we found that Elia has delegated the data management activities for delivery points on the medium voltage level to distribution grid companies. While we could identify proper controls in the data management process area within Elia, we did not find sufficient controls that enable Elia to monitor the distribution grid's company activities. This relates to **observation 1** documented in paragraph 6.1 that Elia is not sufficiently in control over delegated tasks.

More specifically, this applies in the following cases:

C-1.1	Elia does not allow unauthorized access to master and meter data	Fluvius is the operator of the TDSO Datahub and there is no specific control to supervise access control by Elia. By design, access is limited to user types. The provision of this access to individuals is not supervised by Elia but delegated based on trust.
C-2.1	Elia has access to the appropriate sources for delivery points and is kept informed about changes to them	Elia has no means to verify that changes to data such as updates to delivery points on medium voltage level and corrections to the meter data are submitted to Elia.

5.1.4 Activation Handling

In the process area of activation handling, the audit team established that there were appropriate controls in place for all cases. Since the previous audit Elia has implemented a solution that will make sure that each FSP receives automatically an email of non-compliant communication in case of delayed or missing notification three minutes after the beginning of the activation.

5.1.5 ToE Calculation

In the process area of activation handling, the audit team established that there were appropriate controls in place in all but two related cases:

E-3.3	Elia can detect if activations are systematically surpassing reference power, indicating a data problem	Because of **observation 5**, the fact that the data in the datahub is not checked against source data at the FSP, it would be better to have a proactive check to see whether reference power is always lower than the claimed observation, indicating a data consistency problem
E-3.4	Elia has a defined process to handle incidents where apparently reference power was applied incorrectly as a limit	Because of **observation 5**, the fact that the data in the datahub is not checked against source data at the FSP, it would be better if Elia proactively contacted an FSP if it detects a suspect value for reference power.

Also, Elia explained that they have taken measures to allow FSP's to verify the data stored in Elia's systems on his portfolio. To that effect Elia has implemented a platform with which an FSP will be able have an overview of their pool in real time and the attributes of each delivery point. This system has been implemented in 2020 but falls outside the period audited.

Significant effort was put in the validation of the control for the execution of the ToE calculations as such. For an account of the checks that the audit team carried out, please cf. paragraph 5.2.

5.1.6 Information exchange

In the process area of information exchange, the audit team found controls for all but two expected TOMS:

F-4.2	Elia has firm SLAs with FSP to deliver the info within the timeframe. Elia has built a system that can execute this function within a second.	In order for Elia to fulfil its obligation to deliver notifications to BRPs within 3 minutes, there should be time reserved for handling FSP notifications, cf. **observation 6** in paragraph 6.6
F-6.3	Elia handles the late receipt of FSP messages as an incident	No follow up is defined in case a notification is missing. We would expect that each time, root cause should be known. Cf. **observation 8** in paragraph 6.8.

5.1.7 Volume allocation

In the process area of volume allocation, the audit team found that all expected controls were in place.

5.1.8 Market supervision

The expected controls according to the standard were effectively in place. The audit team has reviewed a model for ad-hoc analysis of activations, in which a simple visual inspection would lead to the detection of irregularities. The report can easily be used to provide the analysis and evidence to CREG.

We did consider other ways in which the current product design could be gamed by FSPs and/or grid users, and identified two additional gaming opportunities for which Elia could implement controls:

1) Since the submeter is the only source for determining activation volumes, grid users and/or FSPs could abuse the system by modulating the consumption measured on the submeter without effectively reducing load. This could be done by bypassing the meter or shifting load to another facility within the user's control. We recommend an additional control to check that the sub-metered activation volume corresponds to an actual reduction on the head point (cf. **observation 2** in paragraph 6.2);

2) FSPs may predict load curves of loads under their control. They could include delivery points in their bids that they know will reduce load based on their profile. This would lead to 'freeriding'. We have seen that the analysis that Elia does for its control H-1.1 would detect this and likely trigger suspicion. However, for increased numbers of activations, it might be worth considering a more automated way of detecting this.

5.2 Validation of calculated ToE volumes

The validation of the implemented calculation of ToE volumes falls within the scope of this audit. The procedure, datasets, file formats and requirements for the calculation are all described in the functional documentation of the TSO-DSO Flex Data Hub. The goal is to perform the calculation of the ToE volumes by following the available documentation and validate whether the results are equivalent to the results provided to the TSO-DSO Flex Data Hub. It is out of the scope of this audit to verify whether the imbalance is properly corrected for the BRPsource and allocated to the BRPfsp in the cases where ToE is applicable. The validation of the settlement between the FSP and BRP as well as the availability of any opt-out agreements are also out of the scope of this audit.

5.2.1 Bid selection

The validation of ToE volume calculations is performed by verifying the calculationsteps done for some bids activated by Elia in 2019.

A subset of 3 bids was chosen as they reflect a number of straightforward headpoints with direction ‘off-take’ or ‘combined’, but also a several headpoints that were in the scope of the DSO only, as well as headpoints where submetering was applicable. As a secondary criterion, also the bid size was used. These bids therefore allow validation of all the calculation alternatives described in the business requirements of the TSO-DSO Flex Data Hub, except for the ‘injection’-only calculation.

The bids selected were held respectively in June, August and December 2019.

5.2.2 Approach

All the data used for the validation are the real data provided to the TSO-DSO Data Hub, not e.g. predetermined or tailored test data sets. An overview of the systems involved in the ToE volume calculation is provided by Elia and is shown in Figure X.

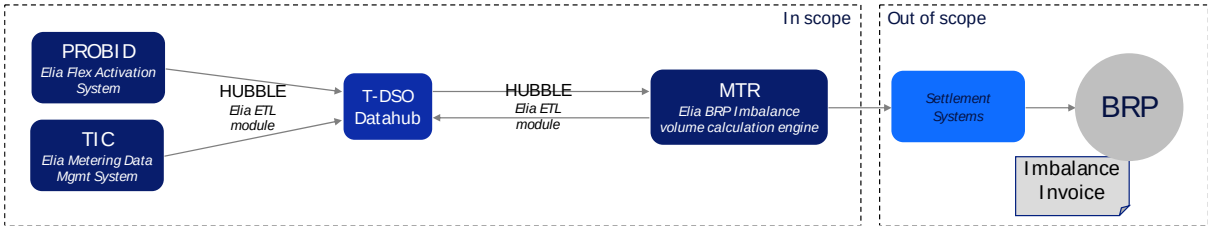

Figure X: Overview of systems and information used for the ToE volume calculation.

The required input data to calculate the ToE volumes and the calculation procedure are described in the functional documentation of the TSO DSO Flex Data Hub. The starting point is the bid activation message from PROBID sent by Elia, containing several EAN codes that are to be activated by the FSP. These EANs should be known by Elia as flexibility providing EANs and are activated according to the flexibility bid by the FSP. Each of the EAN codes from the bid must therefore appear in the list of Headpoints, the list of SDP Flex, and the list of SDP Supply as described in paragraphs 8.2 - 8.4 of the functional documentation, respectively. In addition to verifying whether these EANs are registered as required, the metering data for each of these EANs is to be provided in the format described in paragraph 9.1 of the functional documentation. The latter also applies for the EANs where submetering is applicable, so that the baselines can be correctly considered.

The calculation to be performed is described in the business requirements of the TSO-DSO Flex Data Hub. The activated bids used for this validation are only for ‘off-take’, which means all the Headpoint EANs in the activation are either classified with the direction ‘combined’ or ‘off-take’. The calculation procedure is described for each of these direction classifications in paragraphs 2.1.1 and 2.1.3 of the business requirements, respectively.

For each Headpoint EAN for each PTU within the duration of the activation the measurement and baseline are determined based on the provided metering volumes. Only the baseline 'Last QH' is currently used in the TSO-DSO Flex Data Hub. When submetered Headpoints are used for the delivery of the flexibility, the baseline and measurements of the original Headpoint are used as well.

The first step consists in calculating the E_Delta (=difference between baseline and metering/measurements). This E_Delta is capped to the DP R3 max up & DP R3 max down values which leaves us with an E_Delta_Capped (aka E_Delivered). Finally, in case of over delivery this E_Delta_Capped is adjusted taking into account the requested volume per bid (Asymmetric Imbalance Adjustment) which gives us the E_Delivered' which is split by direction (Injection & Offtake). This E_Delivered' per direction is used for the BRPs perimeter corrections and for the aggregation of ToE Volumes per couple FSP-Supplier.

To validate each of the steps of the calculation the results from the imbalance volume calculation engine are required as final input for the validation.

In summary, this means the follow input data are used to perform and validate the calculation of ToE volumes:

1. Bid details
2. Headpoints (as described in 8.2)
3. SDP Flex (as described in 8.3)
4. SDP Supply (as described in 8.4)
5. Metering volumes (as described in 9.1)
6. The ToE volumes provided to the TSO-DSO Flex Data Hub for validation

All the above-mentioned input data is provided as a .csv file except the bid, which is in .xml. The data is imported in an Excel model specifically built for this audit that executes each of the calculation steps exactly as described in the business requirements and as implemented in MTR, the Elia imbalance volume calculation Engine. This allows for validation of each separate step of the calculation instead of only the final ToE volumes.

5.2.3 Observations and results

The process to execute the calculation as described in the previous section is relatively straightforward, yet it is complicated unnecessarily by the use of different identifiers (EANs) across the various data sets. These different identifiers are similar but not identical between data sets while often referring to the same. For example, the SDP Flex file has EAN (SDP Flex) and EAN-Headpoint, SDP Supply uses Supply-Point EAN and Installation-EAN, the Metering Data uses Flex Point Identifiers, and the overview of calculation steps from MTR uses internal and external DP EAN. Streamlining the use of terminology throughout the entire ToE volume process will allow make it more accessible for the various market parties involved. There were no changes implemented based on this same observation in the audit of 2018. **(observation 7**)

The calculation takes the up and downward reference power values into account. TSO connected delivery points which initially only participated in the mFRR/R3 reserved product did not require a downward reference value, as the only direction of delivery was upwards. When these delivery points are now used for flex delivery, the empty downward reference value is translated to 999.999 MW in the SDP Flex data on the FlexHub, instead of the correct value of 0 MW. This creates a discrepancy between the values calculated by the FlexHub and these calculated by Elia in their own MTR application, which uses the correct values. Since Elia compares the output of the FlexHub with the output of their own calculations, these discrepancies will be flagged or ignored since Elia will use the results of MTR for the headpoints on the TSO grid in the further calculations of ToE volumes and BRP's perimeter corrections.

We do recommend correcting these downward reference values in the SDP Flex data in order to remain consistent and prevent the need for manual corrections. **(observation 9)**

With the right identifiers determined from input datasets TSO-DSO Flex Data Hub the calculation is readily executed and validated in the model. The downward reference value had to be manually corrected to 0 for several of the delivery points in scope in order to achieve the correct calculation outcomes. The above-mentioned recommendation is therefore explicitly added in the overview. The results of each of the identified validation steps is shown in Table Y below.

Table Y: Overview of validation results.

#	Action	Result
1	Determine if EANs in scope of the activated bid are in the Headpoint list	Validated
2	Determine if EANs in scope are found in the SDP Flex Point list	Validated
3	Determine if EANs in scope are found in the SDP Supply list	Validated
4	Determine if meter data is provided for all the EANs in scope	Validated
5	Determine whether all EANs in scope with meter data available have the same baseline and measurements	Validated
6	Determine whether all EANs in scope with meter data available have the same calculation results for E_Delta, E_Delta_Capped, and E_delivered as described in the T-DSO Metering & ToE Volume Data	Validated with recommendation

5.3 Efficiency of the ToE processes

While evaluating the existence of appropriate controls, the audit team also considered whether the implementation was effective. The judgement of the team is that that is overall the case, but under the condition that Transfer of Energy volumes are low. We have the following observations regarding effectiveness:

1) The low level of automation of business controls (observation 9), see paragraph 6.9 Because the number of activations where Transfer of Energy applies is low, the current level of automation is probably cost efficient, but is prone to errors and will likely be too costly if and when the number of activations will rise.

2) The data for ToE processing is replicated in many systems, whereas as simpler implementation with exp post processing in the TDSO-Datahub might be less costly and less prone to errors (observation 7, see paragraph 6.7)

3) Service management is not a very structured process. Elia employees handle incidents and communication on personal initiative and via email. The management of quality of the processes as well as the continuity in case of staff rollover would improve if a more structured approach were followed (observation 7, see paragraph 6.7)

5.4 Review of the recommendations from the 2018 ToE Audit.

The audit in 2018 of the ToE processes resulted in 9 recommendations. During the 2019 audit we reviewed which follow-up has been given to these recommendations in 2019.

At the same time, we acknowledge that given the publication date of the audit 2018 report and the time needed to implement solutions for the issues identified, the results of these actions might not always be reflected in the 2019 audit.

On 4 recommendations, Elia reported that remedial actions have been put in place, although the results might not always be visible in 2019.

On 1 recommendation, Elia is expecting that actions will be taken.

On 3 recommendations, Elia reports that in their opinion, the current number of ToE transactions does not warrant an investment in the development of ICT solutions.

On 1 recommendation, the auditors cannot fully endorse the way the recommendation has been put into practice.

This feedback, together with the results of the audit for 2019 has been integrated in the recommendations found in section 6 Observations and recommendations

6. Observations and recommendations

6.1 (1) Insufficient control over activities executed by Distribution Grid Operators

Expectation

Elia is accountable and responsible by law and regulation. Elia has implemented the appropriate controls to be in control of the process.

Observation

For the process areas Delivery Point Qualification and Data Management processes, for MV level connection points, Elia relies on the actions of DSOs. Although a contractual framework exists, detailing the terms and conditions for the operation of the Flexhub, as well as the responsibility and liability of each of the parties, this framework stresses more a reactive approach towards the ToE activities then a proactive “in control” approach. The contract specifies the responsibility and liability of each partner in case something was proven wrong with the ToE processes, rather than providing Elia with the process and application controls to supervise the activity.

Risk

Elia cannot fully manage compliance by the DSOs with Elia's obligations.

Recommendation

Implement controls that monitor DSO activity and/or include the FlexHub operations in the ToE audit.

6.2 (2) Absence of a check on the veracity of the sub-metered Demand Response

Expectation

Elia buys a balancing product that is based on a load reduction. Elia verifies that there is an actual load reduction achieved. In case of a load reduction that is measured behind a meter that measures flow at the grid connection (the head point), Elia checks at the head point that a load reduction is achieved.

Observation

In 2019, Elia accepted the submeter data as the source meter data for the baseline without further checks. In fact, for MV level submeters Elia does not know the exact source and treatment of this data.

Elia informed the auditors that since 2020, Elia has the possibility to verify that activations measures on a submeter are likely to have caused a nett reduction of off-take from the grid, by comparing measurement values from the submeter(s) with the measurement values from the headpoint meters.

Risk

In 2019, Elia may have paid for activations that have not really caused a load reduction, either because the meter data is invalid, or the load was only shifted within a connection point without a real nett effect on the grid offtake.

Since the number of delivery points where submeters are used for ToE are limited, and the fact that a verification step has been introduced in 2020, we consider this risk as acceptable.

Recommendation

In so far that this verification step has not been integrated in the ToE operations, make sure it is part of the daily operations. This process should be reviewed as part of the audit of 2020.

6.3 (3) No data access logging to detect inappropriate data access

Expectation

Confidentiality of the FSP portfolio has been the main driver for introducing the role of a Flexibility Data Manager for Transfer of Energy. Elia has taken measures to protect the confidentiality and ensure that no improper access takes place. Given the fact that the value of FSP portfolio is so significant for the FSP that it is worth the cost of the TDSO Datahub and the activity of the Flexibility Data Manager, it should be traceable who amongst the authorized users has accessed the data, so to trace improper access.

Observation

Elia has ensured that by design, few people have access to the data on a need-to-know basis and has restricted this access as much as possible. However, there are multiple users with full data access, namely Fluvius users that act as Datahub operator, the system administrator of the hosted Datahub and Elia users. Elia does not control to whom Fluvius as Datahub Operator provides access.

However, the TDSO Datahub does log which named users have accessed which part of the application. Certainly, in the domain of extracting data from the application, a log consultable by the Elia is available.

Risk

The possibility that a corrupted user could collect and sell the Datahub data without being traced, has been tackled.

Recommendation

None

6.4 (4) Delayed and missing notifications from FSPs are not consistently logged

Expectation

FSPs that fail to send notifications in time may be punished by being blocked from market access to markets where Transfer of Energy applies. We would expect Elia to automatically record every instance where a notification is late or missing and send this as an alarm to an employee so that the FSP can be notified.

Observation

Since begin 2020 the software used by Elia will assure that each FSP receives automatically an email of non-compliant communication in case of delayed or missing notification three minutes after the beginning of the activation.

Thanks to this implementation, all FSPs without discrimination are aware of potential issues before ex-post control and penalties are applied.

Risk

No longer a risk

Recommendation

None

6.5 (5) FSP Portfolio administration is not automatically synchronized between FSP and Elia

Expectation

The data that is maintained for executing the transfer of energy process is the basis for financial transactions. FSPs and Elia agree at any moment about the data that is the basis for this settlement.

Observation

In 2019, the data about the FSP Portfolio is basically entered manually into the systems at the start of a contract for Transfer of Energy either in screens or through uploading a file that is assembled based on contractual data. There is no direct link with the data that the FSP maintains himself. Any changes to this data on the side of the grid operators or the side of the FSP is communicated between persons and processed manually. There is no opportunity to check the data by comparing the FSP source data with the source data used on the Transfer of Energy process

In 2020 (outside the audit period), Elia implemented a system Elia has implemented an interface platform where FSPs can have a visibility of the delivery points in the DataHUB. This new platform named Hermes was release on September 2020. Thanks to this platform FSPs have now read access to all their delivery points in the DataHUB and can look at the composition of their portfolio per date. Further functionalities will be developed in the future in order to manage changes and store contractual information.

Risk

While in 2019 the ToE calculation and subsequent settlement may be based on incorrect data without it being detected, this risk seems to have been tackled in 2020.

Recommendation

The newly implemented system should be included in the ToE audit on 2020.

6.6 (6) Insufficient time reserved for processing FSP notifications

Expectation

Elia has committed to sending notifications to BRPSource within 3 minutes after start and end of an activation. Since these messages contain calculations based on notifications from FSPs, Elia has allocated sufficient time between the receipt of the message from the FSP and the deadline for sending the derived data to the BRPsource.

Observation

The deadline for submission of the notification of the FSP is equal to the deadline for Elia to notify the BRPSource about potential impact.

Risk

Elia is likely to miss its 3-minute deadline. It makes sense for the FSP to wait until a late moment, when it is which activations were successful. If BRPs use this message to make changes to their balance, the delay may cause damage.

Recommendation

Allow for a period, e.g. a minute, between receipt of FSP notifications and the deadline for sending BRPSource notifications.

Elia notified the auditors that the recommendation has been considered in the new version of the Transfer of Energy Rules that will be put in consultation in the last quarter of 2020

6.7 (7) Processing of ToE within Elia back end systems is more complex than strictly needed

Expectation

Elia chooses an efficient design that minimizes data replication and minimizes impact on its existing system operations.

Observation

Elia replicates all detail data about the FSP portfolio into its back-end systems and has implemented most application level controls in existing legacy systems.

Risk

It is difficult to track data quality. It is hard to make corrections in a controlled manner. When regulation changes, there is complex change management involved in programming these changes into the systems. This solution would not scale easily beyond a small set of industrial sites for demand response.

Recommendation

It is possible in our view without violating the rules set out in the regulation to run ToE completely from a system that is independent from Elia's back end systems if Elia would treat bids and activiations from the aggregator's portfolio as a "virtual power plant", i.e. as a portfolio rather than a set of individual delivery points. If a ex-post approach is taken for all calculations and validation instead of the real-time approach, the implementation would have been much simpler.

Elia notified the auditors that Elia has taken note of the recommendation for future evolutions of ToE tools.

6.8 (8) Service management should be based on a more structured set of processes and tools

Expectation

Elia records incidents and problems such as exceptions in process executions, disputes and design problems, and has a structured process for following up on incidents and problems.

Observation

Whereas for the IT systems Elia does have a structured process for follow in Jira using the ITIL library for service management, there is no equivalent on the level of the business process. Incidents and problems are handled in emails, calls and meetings without a formal structure and shared administration.

Risk

It is difficult to track status of incidents and problems. Management has no proper source to supervise service quality. There is a risk that incidents and problems are not managed to conclusion. It is very hard to hand over open incidents and problems from one person to another, e.g. in case of sudden prolonged absence of a key employee.

Recommendation

Use service management tooling to handle incidents and problems in a structured manner.

Elia notified the auditors that according to Elia service management is still manageable with the current process.

Elia will consider reassessing the current process based on the growing number of service management calls triggering a momentum to automate the process, through for example a JIRA ticketing system.

6.9 (9) High number of manual controls make the process error prone and labor intensive

Expectation

Business rules that are applied repetitively and/or in automated processing are implemented as application controls rather manual controls. This allows for consistency, efficiency and avoids arbitrariness.

Observation

We found 77 organizational and 90 technical controls. Of those organizational controls, many could easily be automated: application controls are business rules that are automatically and rigorously applied whenever their conditions occur. In execution they are cheap and reliable compared to manual controls, but designing, developing and testing comes with a relevant cost.

Risk

The solution does not really scale. If volumes of Transfer of Energy grow, Elia may not be able to manually manage the process. A lack of consistency in the execution may lead to arbitrary decisions.

Recommendation

Plan the automation of controls

Elia notified the auditors that according to Elia manual controls are still manageable. Elia will consider reassessing the current processes and automate some of them based on the evolution of operational workload.

6.10 (10) The process to verify the appropriateness of the selection of the X out of Y baseline method has not been formalized

Expectation

Since in 2019 the possibility for an FSP was added to select the X out of Y baseline method for selected products and delivery points. At the same time, Elia was given the possibility to refuse such a selection.

Hence, Elia has a published and formalized process that documents the verification procedure and acceptance criteria for such a baseline selection.

Observation

Elia has conducted a study to define the context in which Elia would consider the use of the X out of Y baseline appropriate. This study delivered a model that will provide the possibility to assess whether a baseline choice is appropriate for a given delivery point. However, this has so far not resulted in a documented procedure nor the publication of acceptance criteria.

Risk

When an FSP would select the X out of Y baseline, for a delivery point where Elia considers this as inappropriate, this could lead to lengthy discussions on the reasons behind the refusal. Also, if for another delivery point the X out of Y baseline would be accepted, this might lead to questions whether the evaluations have been carried out using the same criteria.

Recommendation

Publish the procedure and criteria used in the verification of the baseline selection.